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IEEE CIS VP Industrial and Governmental Activities Vision Statement

It is an honor and a privilege to serve as the first Vice President for Industrial and Governmental Activities (I&GA) of the IEEE Computational Intelligence Society (CIS).

Below, I will explain the motivation and origins of this new organization – more information about I&GA will soon be available on the CIS website. However, let me first describe my background and experience to explain how we arrived at the formation of I&GA and its mission.

I began as a volunteer when our society was still a Council (*Neural Network Council*). I spent almost three decades of my professional life as a member of its ExCom and AdCom, helping to nurture its growth into a Society (*Neural Networks Society* followed by *Computational Intelligent Society*). As a CIS member with a strong background in industrial applied research, I spent much of my time analyzing the academic research presented in our conferences and publications. My objective was to find the relevant “nuggets” that I could refine and apply to the industrial challenges in my work. A recent survey with CIS members showed that I was not alone. There are about 30–35% of our current members in a similar situation.

We started addressing this issue in 2020, when I chaired the IEEE CIS *Strategic Planning Committee (SPC)* and used

SWOT analysis to uncover CIS’s critical needs, including the lack of Industry presence in our activities. During the *2020 Strategic Planning Retreat (SPR)*, I chaired a working group on Industrial Activities (IA) to further shape this concept. As a result, the CIS President created the *2020 IA Ad-hoc Committee*. While chairing that committee, we evolved this concept, shaping its vision and creating the blueprints for the current organization. Finally, with the *2021 I&GA Ad-hoc Committee*, we extended the scope of our activities to become *Industrial and Governmental Activities (I&GA)*, and we refined its vision to its current state, which is defined below.

Currently, the vision for the I&GA Committee relies on the following seven components:

- a) *Industry Drivers*: To attract industry participation in CIS activities, we need to create and evolve the CIS *value proposition* for Industry. To discover it, in the Spring of 2021, we surveyed our industrial members. Out of 501 responders, we identified 189 Industry or Government responders, whom we invited to become CIS I&GA volunteers. Their responses gave us a sample of unmet Industry needs and preferences. We will continue this engagement process to identify and refine additional business needs that AI/CI technologies could address.
- b) *Industrial and Governmental Membership Diversity*: We need to increase the number of experienced industry

volunteers. In particular, we need to reach out to our Industry Sr. Members & Fellows to champion and support the nominations of other Sr. Members and Fellow candidates. Similarly, we want to reach out to our Young Professionals (YP) and women members to become active CIS I&GA volunteers. To achieve this goal, we will work in coordination with Prof. Sanaz Mostaghim, Member Activities VP.

- c) *CIS Offerings to Industry*: We want to create services and products for Industry, ranging from position papers to reports, webinars, and tutorials. We also want to have industry-centered panels, workshops, and conferences with keynotes by industry leaders. We will make those video recordings available and offer them with the previously listed products in a CIS customized version of IEEE *Resource Center*, which we are in the process of creating and shaping.
- d) *I&GA Structure*: As a brand new organization, we will jump-start I&GA’s structure by drafting its Operations Manual, creating I&GA Committees and Task Forces focused on various industry sectors, and strengthening them with volunteers. We will create a new forum, the *Executive Advisory Board*, and invite industry and government thought-leaders to help us understand current needs for AI/CI solutions and initiatives and shape forthcoming ones.

- e) *Standards*: To be relevant, we need to develop a CIS Standards Committee strategy to leverage our technical expertise while being demand-driven. We will work with IEEE Standards Association (SA) to drive Standards for AI technology, such as the *Consortium on the Landscape of AI Safety* (CLAIS), and contribute to IEEE SA *Artificial Intelligence Systems* (AIS) and IEEE SA P7000 family, focused on AI and Ethics. To this end, the CIS Standards Committee will report to the I&GA to identify industry needs, with a dotted line to Technical Activities to leverage our technical know-how. To achieve this goal, we will work in coordination with Prof. Luis Magdalena, Technical Activities VP.
- f) *Government Engagement*: We wish to establish and improve CIS relationships

with AI-friendly government agencies, such as the *National Artificial Intelligence Initiative* (AI.gov), the *European Approach to Artificial Intelligence* (<https://digital-strategy.ec.europa.eu/en/policies/european-approach-artificial-intelligence>), the *European AI Alliance* (<https://digital-strategy.ec.europa.eu/en/policies/european-ai-alliance>), etc. We want to invite their thought-leaders as speakers at CIS conferences to describe their initiatives and the research opportunities that they entail. Finally, we would like to leverage IEEE USA to identify critical contacts within the US Government.

- g) *Industry Engagement in Conferences*: We want to create a forum within CIS conferences, in which Industry can participate without having to submit scholarly papers. Industry leaders can define current and future challenges

that AI/CI technology could address. We can achieve this with focused panels or keynote speeches. With increasing industry participation in CIS conferences, we will grow conference exhibits, sponsorships, and, more importantly, guidance to make AI/CI technology relevant to Industry needs. To this end, we have created an *Industry Day* within the 2022 IEEE World Congress on Computational Intelligence (WCCI 2022). We are also organizing the 2023 Conference on AI (CAI), which will take place in June 2023 in the Silicon Valley/San Francisco Bay Area. CAI will showcase this new format, which should be attractive to Industry. To achieve this goal, we will work in coordination with Prof. Marley Vellasco, Conferences VP.

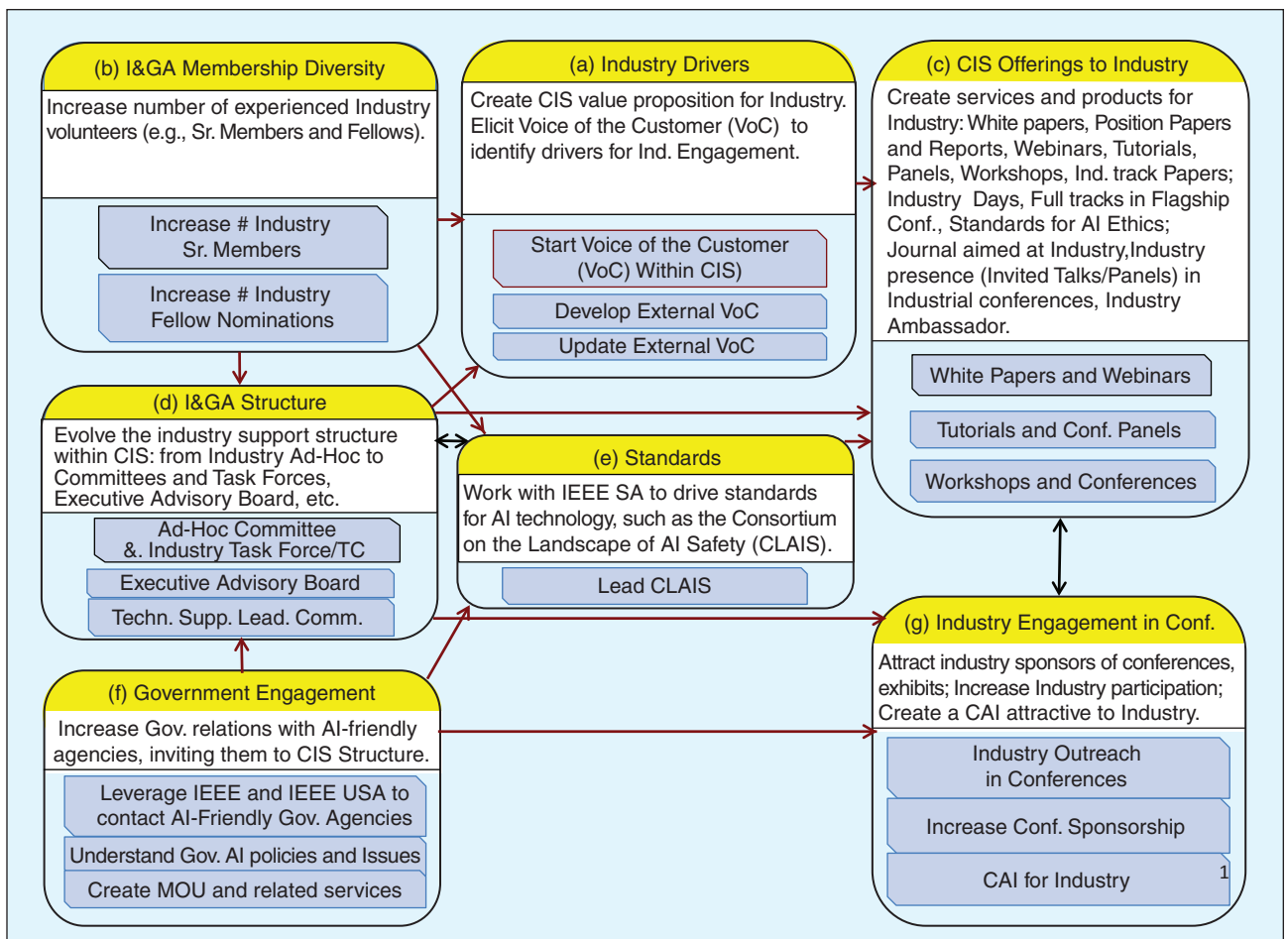


FIGURE 1 Interactions of I&GA's Vision Components. The arrow between two components indicates the most likely direction of influence. For instance, the component *I&GA Structure* (d) could influence the refinement of *Industry Drivers* (a) by eliciting them from the Industry leaders in the Executive Advisory Board (EAB). Similarly, members of the EAB could guide the priorities of *CIS Offerings to Industry* (c), suggest potential demand for new *Standards* (e), and share their view in conference panels, impacting *Industry Engagement in Conferences* (g).

The seven components of the I&GA vision will interact synergistically, as we develop them over time. We illustrate these interactions in Figure 1.

Finally, I strongly encourage you to participate in the CIS Industrial and Governmental Activities by volunteering in any of its committees and task

forces. If you are interested in being involved in these activities or have any suggestions for CIS I&GA, please do not hesitate to contact me.

2022 IEEE CIS Awards

Alice E. Smith
IEEE CIS 2021 Awards Committee
Chair, Auburn University, USA

Neural Networks Pioneer Award

Derong Liu, Guangdong University of Technology, CHINA

For contributions to recurrent neural networks and applications.



Derong Liu received the Ph.D. degree in electrical engineering from the University of Notre Dame in 1994. He was a Staff Fellow with General Motors Research and Development Center, from 1993 to 1995. He was an Assistant Professor with the Department of Electrical and Computer Engineering, Stevens Institute of Technology, from 1995 to 1999. He joined the University of Illinois at Chicago in 1999, and became a Full Professor of Electrical and Computer Engineering and of Computer Science in 2006. He was selected for the “100 Talents Program” by the Chinese Academy of Sciences in 2008, and he served as the Associate Director of The State Key Laboratory of Management and Control for Complex Systems at the Institute of Automation, from 2010 to 2016. He is currently a professor with Guangdong University of Technology. He has published 19 books. He is

the Editor-in-Chief of Artificial Intelligence Review (Springer). He was the Editor-in-Chief of the IEEE Transactions on Neural Networks and Learning Systems from 2010 to 2015. He received the Faculty Early Career Development Award from the National Science Foundation in 1999, the University Scholar Award from University of Illinois from 2006 to 2009, the Overseas Outstanding Young Scholar Award from the National Natural Science Foundation of China in 2008, the Outstanding Achievement Award from Asia Pacific Neural Network Assembly in 2014, the INNS Gabor Award in 2018, the IEEE TNNLS Outstanding Paper Award in 2018, the IEEE SMC Society Andrew P. Sage Best Transactions Paper Award in 2018, and the IEEE/CCA J. Automatica Sinica Hsue-Shen Tsien Paper Award in 2019. He was the General Chair of 2014 IEEE World Congress on Computational Intelligence. He is a Fellow of the IEEE, a Fellow of the International Neural Network Society, a Fellow of the International Association of Pattern Recognition, and a Member of Academia Europaea (The Academy of Europe).

Fuzzy Systems Pioneer Award Gang Feng, City University of Hong Kong, Hong Kong SAR

For contributions to theory and applications of model-based fuzzy control systems.



Gang Feng received the B.Eng. and M. Eng. degrees in Automation from Nanjing Aeronautical Institute (now called Nanjing University of Aeronautics and Astronautics), China, in 1982 and 1984 respectively, and the Ph.D. degree in Electrical Engineering from the University of Melbourne, Australia, in 1992. He has been with City University of Hong Kong since 2000 after serving as lecturer/senior lecturer at University of New South Wales, Sydney, Australia, 1992–1999. He is now Chair Professor of Mechatronic Engineering. He has been doing research in adaptive control, fuzzy control, time-delayed systems, networked control systems, and cooperative control of networked multi-agent systems. His research effort has led to one research monograph entitled Analysis and Synthesis of Fuzzy Control Systems: A model Based Approach, 9 invited book chapters, over 360 international journal papers including 210 in Automatica and IEEE Transactions. His works have been well received by his peers, which is evidenced by over 23600 Scopus citations from others. He is listed as a SCI highly cited researcher by Clarivate Analytics, 2016–2021.

Prof. has been awarded the IEEE Transactions on Fuzzy Systems Outstanding Paper Award, Alexander von